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Abstract

Background
Research on physical activity among Aboriginal peoples has generally taken a pan-Aboriginal approach rather than considering First Nations people, Métis and Inuit separately. However, the groups differ geographically and culturally.

Data and methods
Data from the 2005 Canadian Community Health Survey were used to compare rates of active and moderately active leisure time (versus inactive) among First Nations people off reserve, Métis and Inuit with rates among non-Aboriginal people. Factors associated with active and moderately active leisure time were examined using logistic regression models. An active or moderately active lifestyle was studied in relation to self-perceived physical and mental health and the presence of chronic conditions.

Results
First Nations (people off reserve) and Métis people were significantly more likely than non-Aboriginal Canadians to have an active lifestyle. Being male, younger age and high educational attainment were associated with an increased likelihood of physically active leisure time. An active lifestyle was associated with an increased likelihood of excellent or very good self-perceived physical and mental health among Métis and among Aboriginal people overall. Level of leisure-time physical activity was not associated with chronic conditions for any Aboriginal group or for the non-Aboriginal population.

Interpretation
Aboriginal peoples generally have higher levels of leisure-time activity than do non-Aboriginal people.

Keywords
Aboriginal peoples, chronic disease, exercise, health status, leisure activities, mental health

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Previous research has suggested that Aboriginal people off reserve may be more active than their non-Aboriginal counterparts.[1,2] As well, according to results of a 2002/2003 survey, one-fifth of First Nations people living on reserves engaged in at least 30 minutes of moderate-to-vigorous activity four or more days per week. Whether they are Aboriginal[3,4] or non-Aboriginal,[2] physically active people are more likely than those who are less active to report excellent or very good health.

Studies of physical activity among Aboriginal people have tended to consider First Nations people, Métis and Inuit collectively rather than as separate groups, or have focused exclusively on First Nations people. However, geographic and cultural differences between the groups may be related to leisure-time physical activity. Increasingly, the need for research that makes distinctions between First Nations people, Métis people and Inuit is being recognized.[5]

Relatively little information is available about factors that may influence Aboriginal peoples' participation in physical activity. A 2006 review[6] found negative associations with age and body weight, and positive associations with education and perceived health. In addition, males were generally more active than females, and people with a supportive social environment were more likely to be physically active. However, this review cited mostly American data; little is known about the correlates of physical activity for Aboriginal people in Canada, and specifically, separate Aboriginal groups.

The current study has three goals: 1) to examine leisure-time physical activity among First Nations people living off reserve, Métis people and Inuit; 2) to determine factors associated with active and moderately active (compared with inactive) leisure time for the three groups; and 3) to examine the relationship between physical activity and health among Aboriginal people.

Methods

Data source

Data from the 2005 Canadian Community Health Survey (CCHS) were used to examine the leisure-time physical activity of First Nations people off reserve, Métis and Inuit aged 12 or older. The target population of the CCHS is all Canadians aged 12 or older. Excluded from the sampling frame are individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Forces, and residents of certain remote regions. Coverage is in the range of 98% in the provinces; in the Territories, it is about 90% in the Yukon, 97% in the Northwest Territories and 71% in Nunavut, primarily because some remote regions are excluded. In Nunavut, the CCHS collects information in the 10 largest communities: Iqaluit, Rankin Inlet, Cambridge Bay, Kugluktuk are always in sample, plus one community from Cape Dorset, Pangnirtung, Igloolik or Pond Inlet is selected; plus one community from Baker Lake or Arviat. Households were selected using a complex cluster design based on the Labour Force Survey.

CCHS respondents were asked, "Are you an Aboriginal person, that is, North American Indian, Métis or Inuit?" (Although respondents self-identified as "North American Indian," the term "First Nations" is used throughout this study.) The 2005 sample included 3,414 respondents who self-identified as belonging to a single Aboriginal group (1,522 First Nations, 1,533 Métis, and 359 Inuit) and 129,494 respondents who were not Aboriginal. This analysis excludes 39 respondents who reported belonging to more than one Aboriginal group.

Measures

Respondents' *leisure-time physical activity* was based on a list of common activities (Appendix Table A). Respondents reported the number of times they had engaged in each activity during the previous three months and the average duration. Average daily energy expenditure was calculated for each activity by multiplying by an estimate of the energy cost of the activity (kilocalories per kilogram of body weight per hour, according to the Canadian Fitness and Lifestyle Research Institute guidelines). The energy expenditures were summed and used to classify respondents into one of three categories: active (3 or more kilocalories per kilogram of body weight per day); moderately active (1.5 to less than 3 kilocalories per kilogram per day); and inactive (less than 1.5 kilocalories per kilogram per day). Active leisure time is the equivalent of walking at least 1 hour every day; moderately active leisure time, half an hour per day.

Three health indicators were considered in the current study: *self-perceived health* (general); *self-perceived mental health*; and the presence of *chronic conditions* (for example, asthma, high blood pressure, arthritis) (Appendix Table B). Respondents were asked, "In general, would you say your [mental] health is..." The response options were: excellent, very good, good, fair, and poor. The number of chronic conditions a respondent reported was dichotomized to reflect the presence of one or more.

Several socio-demographic characteristics were examined as predictors of leisure-time physical activity: gender, age, number of dependants aged 0 to 17 in the household (asked of respondents aged 18 or older), marital status (married/common-law versus single/widowed/divorced/separated), and employment (yes or no). Age was classified into five groups: 12 to 17, 18 to 34, 35 to 49, 50 to 64, and 65 or older. Total annual household income was classified into three categories: less than $20,000; $20,000 to $39,999; and $40,000 or more. Education was classified as: less than secondary graduation, secondary graduation, some postsecondary, and postsecondary graduation.

Statistical analyses

Descriptive statistics on the socio-demographic characteristics, self-reported health indicators, and leisure-time physical activity of the study sample were calculated. To account for the younger age profile of the Aboriginal population, percentages for all health outcomes and leisure-time physical activities were age-standardized to the Aboriginal population. Chi-square comparisons were used to identify significant differences between each Aboriginal group and the non-Aboriginal population (but not between Aboriginal groups). Logistic regression was used to determine whether the socio-demographic factors were associated with active and/or moderately active leisure time, and to examine associations between the level of leisure-time activity and the measures of self-reported health. Separate models were fitted for each Aboriginal group and for the non-Aboriginal comparison group. Because of the relatively small sample for each Aboriginal group, models combining the three were also fitted. Sampling weights were used in all analyses. To account for the complex survey design, a bootstrapping technique was applied for variance estimation.[7]

Results

More active/Less healthy

First Nations people who lived off-reserve and Métis people were more likely than the non-Aboriginal population to be physically active in their leisure time: 37% and 39% versus 30% (Table 1). However, the percentage of Inuit who were physically active (31%) was not significantly different from the percentage for non-Aboriginal people.

Each Aboriginal group was more likely than the non-Aboriginal population to report their general and mental health as good/fair/poor rather than excellent/very good. As well, the prevalence of chronic conditions was higher among First Nations people off reserve (71%) and Métis (74%) people than among non-Aboriginal Canadians (64%). The comparatively low rate (65%) among Inuit may be associated with the CCHS question, which specified chronic conditions "diagnosed by a health professional." Inuit communities may have relatively few such people to make the diagonses.

Table 1
Physical activity, health and socio-demographic characteristics, by Aboriginal identity, household population aged 12 or older, Canada, 2005

Characteristics	First Nations off reserve (n=1,522)			Métis (n=1,533)			Inuit (n=359)			Non-Aboriginal (n=129,494)		
	%	Mean	se	%	Mean	se	%	Mean	se	%	Mean	se
Physical activity												
Active	37.0*	...	...	38.5*	...	...	30.7	...	...	29.9	...	...
Moderately active	22.1	...	...	21.8	...	...	24.5	...	...	25.0	...	...
Inactive	40.9	...	...	39.7	...	...	44.9	...	...	45.2	...	...
Health												
Self-rated health												
Good/Fair/Poor	48.3*	...	...	45.8*	...	...	51.3*	...	...	36.2	...	...
Excellent/Very good	51.7	...	...	54.2	...	...	48.7	...	...	63.8	...	...
Self-rated mental health												
Good/Fair/Poor	32.7*	...	...	30.0*	...	...	38.2*	...	...	24.5	...	...
Excellent/Very good	67.3	...	...	70.0	...	...	61.8	...	...	75.5	...	...
Chronic condition												
No	28.8*	...	...	26.1*	...	...	34.9	...	...	35.9	...	...
Yes	71.2	...	...	73.9	...	...	65.1	...	...	64.1	...	...
Socio-demographic												
Sex												
Male	51.9	...	...	50.6	...	...	56.4	...	...	49.3	...	...
Female	48.1	...	...	49.4	...	...	43.6	...	...	50.8	...	...
Age	...	35.2*	0.6	...	36.6*	0.7	...	33.3*	1.5	...	43.0	0.0
Marital status												
Married/Common-law	47.0*	...	...	52.8*	...	...	44.3*	...	...	59.0	...	...
Single/Widowed/Divorced/ Separated	53.1	...	...	47.2	...	...	55.7	...	...	41.0	...	...
Number of children in household†	...	0.9*	0.1	...	0.8*	0.1	...	1.3*	0.2	...	0.6	0.0
Education												
Less than secondary graduation	36.2*	...	...	36.0*	...	...	54.1*	...	...	23.7	...	...
Secondary graduation	15.5	...	...	14.8	...	...	7.1[E]	...	...	15.2	...	...
Some postsecondary	12.5	...	...	10.0	...	...	7.1[E]	...	...	8.8	...	...
Postsecondary graduation	35.9	...	...	39.3	...	...	31.8[E]	...	...	52.4	...	...
Employment												
Currently working	65.2*	...	...	68.4	...	...	60.1	...	...	69.2	...	...
Not working	34.8	...	...	31.6	...	...	39.9	...	...	30.9	...	...
Household income												
Less than $20,000	18.5*	...	...	14.5*	...	...	18.0*[E]	...	...	9.4	...	...
$20,000 to $39,999	25.8	...	...	21.2	...	...	23.6[E]	...	...	18.9	...	...
More than $40,000	55.8	...	...	64.3	...	...	58.4	...	...	71.7	...	...

* significantly different distribution from non-Aboriginal population (p<0.05)
† population aged 18 or older
se = standard error
... not applicable
Note: Chi-square comparisons have been age-standardized to Aboriginal population.
Source: 2005 Canadian Community Health Survey.

To some extent, these differences in physical activity and health reflect socio-demographic characteristics. Each Aboriginal group tended to be younger and to have more dependent children in their households than did non-Aboriginal Canadians. They were also more likely to live in rural areas, to be single, to live in households with low annual income, and to have less than secondary graduation. First Nations people off reserve were also significantly less likely to be employed.

Active leisure time

The first set of models examined socio-demographic characteristics that might be related to active (versus inactive) leisure time (Table 2). For First Nations people off reserve and Métis people, gender, education and age were significantly associated with active leisure time. The odds of being active were higher for males than for females. Individuals with higher levels of education were more likely to be active than were those who had not graduated from secondary school. And 12- to 17-year-olds had significantly higher odds of active leisure time than did people aged 18 to 34. The odds of active leisure time were significantly lower among First Nations people off reserve aged 35 to 64. For Inuit, no socio-demographic factors were significantly related to active leisure time, although the small sample size may have precluded the detection of significant associations.

To put the findings for each Aboriginal group in context, a model was fitted for non-Aboriginal Canadians. Most of the socio-demographic characteristics included in the model were significantly related to leisure-time physical activity. The odds of being active (versus inactive) were significantly higher for non-Aboriginal people who were male, whose education had advanced beyond secondary graduation, and who were aged 12 to 17. The odds of being active were significantly lower for those who lived in lower-income households (less than $40,000), who were married or in a common-law relationship, who had a relatively large number of young dependants in their household, who were employed, and who were aged 35 or older.

Moderately active leisure time

Fewer characteristics were associated with moderately active (versus inactive) leisure time (Table 3). For First Nations people off reserve, household income below $40,000 (rather than $40,000 or more) was associated with lower odds of moderately active leisure time. For Métis people, urban residence and

Table 2
Odds ratios relating active (versus inactive) leisure time to selected characteristics, by Aboriginal identity, household population aged 12 or older, Canada, 2005

	First Nations off reserve (n=1,522)			Métis (n=1,533)			Inuit (n=359)			Non-Aboriginal (n=129,494)		
	Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval	
		from	to		from	to		from	to		from	to
Sex												
Male	1.66*	1.07	2.59	1.72*	1.08	2.75	3.54	0.85	14.76	1.35*	1.28	1.42
Female†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Age group												
12 to 17	3.97*	1.24	12.68	3.88*	1.09	13.74	6.42	0.61	67.95	2.86*	2.50	3.27
18 to 34†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
35 to 49	0.53*	0.30	0.92	1.01	0.55	1.85	0.23	0.03	1.73	0.72*	0.68	0.76
50 to 64	0.38*	0.18	0.81	0.88	0.40	1.90	0.16	0.00	14.21	0.67*	0.63	0.72
65 or older	0.40	0.15	1.09	0.71	0.21	2.41	0.26	0.00	609.41	0.72*	0.65	0.79
Marital status												
Married/Common-law	0.89	0.54	1.47	0.58	0.31	1.12	1.06	0.26	4.25	0.73*	0.69	0.77
Single/Widowed/Divorced/Separated†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Number of children in household	0.96	0.78	1.18	1.20	0.92	1.57	1.17	0.68	2.01	0.96*	0.93	0.99
Education												
Less than secondary graduation†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Secondary graduation	0.82	0.40	1.70	2.00	0.81	4.94	0.62	0.02	19.24	1.41*	1.29	1.55
Some postsecondary	2.80*	1.24	6.31	2.27	0.78	6.55	2.72	0.15	48.60	1.57*	1.40	1.76
Postsecondary graduation	2.01*	1.13	3.59	3.82*	1.81	8.10	3.78	0.52	27.41	1.75*	1.62	1.89
Employment												
Working	0.60	0.34	1.05	0.69	0.36	1.33	0.63	0.12	3.26	0.74*	0.69	0.79
Not working†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Household income												
Less than $20,000	0.69	0.34	1.37	0.61	0.28	1.36	1.01	0.13	7.74	0.61*	0.57	0.67
$20,000 to $39,999	0.72	0.42	1.25	0.69	0.35	1.34	1.50	0.18	12.47	0.65*	0.61	0.69
More than $40,000†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...

† reference category
* significantly different from estimate for reference category ($p<0.05$)
... not applicable
Note: All models control for population density.
Source: 2005 Canadian Community Health Survey.

postsecondary graduation were associated with increased odds of moderate activity. None of the socio-demographic factors was associated with moderate activity among Inuit. However, among the non-Aboriginal population, being older, lower education and household income, being employed and being married were negatively associated with moderately active leisure time.

Leisure-time activity and self-perceived health

To determine if active or moderately active leisure time was associated with health status over and above socio-demographic characteristics, separate models were fitted for each Aboriginal group, for the three groups combined, and for the non-Aboriginal population.

Active leisure time was associated with self-perceived general and mental health for Métis people (Table 4). The estimates were not significant for First Nations people off reserve or Inuit, although the odds ratios were in the same direction. To overcome the small sample sizes, the three groups were considered together. In this case, active leisure time was associated with increased self-perceived general and mental health, even when controlling for socio-demographic characteristics. For non-Aboriginal Canadians both active and moderately active leisure time were associated with increased odds of reporting excellent or very good self-perceived health.

Neither active nor moderately active leisure time was associated with the presence of one or more chronic conditions for any Aboriginal group (alone or combined) or for the non-Aboriginal population.

Discussion

According to results of the 2005 Canadian Community Health Survey, First Nations people living off-reserve and Métis people were significantly more physically active in their leisure time

Table 3
Odds ratio relating moderately active leisure time (versus inactive) to selected characteristics, by Aboriginal identity, household population aged 12 or older, Canada, 2005

	First Nations off reserve (n=1,522)			Métis (n=1,533)			Inuit (n=359)			Non-Aboriginal (n=129,494)		
	Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval	
		from	to		from	to		from	to		from	to
Sex												
Male	1.00	0.59	1.68	1.03	0.64	1.65	1.01	0.26	3.90	1.03	0.98	1.08
Female†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Age group												
12 to 17	1.86	0.43	7.96	1.26	0.35	4.57	0.61	0.00	1008.97	1.73*	1.49	2.01
18 to 34†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
35 to 49	0.63	0.34	1.20	0.78	0.44	1.39	0.47	0.10	2.28	0.90*	0.84	0.96
50 to 64	0.81	0.39	1.67	0.76	0.38	1.53	1.45	0.27	7.85	0.91*	0.85	0.98
65 or older	1.76	0.63	4.93	1.38	0.44	4.34	0.35	0.00	2466.37	1.08	0.98	1.18
Marital status												
Married/Common-law	1.11	0.63	1.96	0.82	0.45	1.49	0.83	0.24	2.86	0.92*	0.87	0.97
Single/Widowed/Divorced/Separated†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Number of children in household	1.03	0.82	1.31	0.97	0.76	1.24	1.19	0.68	2.06	0.96*	0.93	0.99
Education												
Less than secondary graduation†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Secondary graduation	1.68	0.77	3.63	1.24	0.55	2.79	0.90	0.04	22.43	1.33*	1.22	1.46
Some postsecondary	1.29	0.52	3.15	0.89	0.36	2.23	1.10	0.19	6.31	1.48*	1.33	1.64
Postsecondary graduation	1.16	0.58	2.32	2.12*	1.15	3.89	1.46	0.36	5.86	1.63*	1.51	1.75
Employment												
Working	0.96	0.51	1.83	1.07	0.57	1.99	0.83	0.25	2.78	0.83*	0.77	0.88
Not working†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Household income												
Less than $20,000	0.48*	0.23	0.97	0.67	0.30	1.54	1.24	0.26	6.06	0.64*	0.59	0.69
$20,000 to $39,999	0.33*	0.18	0.62	0.90	0.49	1.65	1.03	0.21	5.01	0.72*	0.68	0.77
More than $40,000†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...

† reference category
* significantly different from estimate for reference category ($p<0.05$)
... not applicable
Note: All models control for population density.
Source: 2005 Canadian Community Health Survey.

than was the non-Aboriginal population. These results reinforce earlier findings,[1,2] although in this analysis, significant differences were not apparent for Inuit.

Many of the factors that influence leisure-time activity in the general population were significant for Aboriginal peoples.[2,6,8] Being male, younger age and higher educational attainment were associated with *active* leisure among First Nations people off reserve and Métis people. Fewer factors were associated with *moderately active* leisure among Aboriginal peoples (possibly because of small sample sizes), despite significant relationships for the non-Aboriginal population.

As reported in earlier studies,[2-4] whether they were Aboriginal or non-Aboriginal, physically active people were more likely than those who were less active to report excellent or very good general and mental health. However, moderately active leisure time was not positively associated with self-perceived general and mental health for Aboriginal people, which indicates a need for further research to determine the amount of activity required for associations to emerge.

Despite higher levels of physical activity, Aboriginal people tend to report poorer health. Earlier studies have shown a relatively high prevelance of obesity[8,9,10] and the associated complications of diabetes[11-13] and other chronic conditions[3] among the Aboriginal population.

It is often suggested that health disparities are driven by social rather than biological determinants.[14] For instance, smoking, poor housing conditions and lower income can negatively affect health.[15] When the influence of several social determinants was taken into account, active leisure time was associated with health only for Métis people.

A more complex relationship between physical activity and health may exist for Aboriginal people. It is possible that factors not considered in this analysis

Table 4
Adjusted odds ratios relating level of leisure time activity to self-rated general and mental health and presence of chronic condition(s), by Aboriginal identity, household population aged 12 or older, Canada, 2005

	First Nations off reserve (n=1,522)			Métis (n=1,533)			Inuit (n=359)			Total Aboriginal (n=3,414)			Non-Aboriginal (n=129,494)		
	Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval		Odds ratio	95% confidence interval	
		from	to		from	to		from	to		from	to		from	to
Self-rated health															
Active leisure time	1.50	0.93	2.41	3.48*	2.04	5.93	2.13	0.66	6.92	2.24*	1.59	3.17	2.16*	2.04	2.29
Moderately active leisure time	0.93	0.56	1.52	1.55	0.93	2.56	1.34	0.36	4.97	1.22	0.88	1.70	1.52*	1.44	1.61
Inactive leisure time†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
Self-rated mental health															
Active leisure time	1.55	0.98	2.46	1.74*	1.00	3.03	0.62	0.18	2.18	1.58*	1.12	2.22	1.52*	1.43	1.62
Moderately active leisure time	1.47	0.90	2.40	1.12	0.67	1.85	1.69	0.61	4.71	1.31	0.94	1.81	1.29*	1.21	1.36
Inactive leisure time†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...
One or more chronic conditions															
Active leisure time	1.62	0.93	2.81	0.82	0.47	1.44	3.39	0.92	12.44	1.24	0.84	1.82	0.93	0.87	0.98
Moderately active leisure time	1.70	0.95	3.05	0.69	0.39	1.20	1.38	0.46	4.15	1.12	0.76	1.64	1.04	0.98	1.10
Inactive leisure time†	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...	1.00	...	...

† reference category
* significantly different from estimate for reference category ($p<0.05$)
... not applicable
Note: All models control for age, sex, marital status, number of dependant children in household, education, employment status, household income, and population density.
Source: 2005 Canadian Community Health Survey.

What is already known on this subject?

- Aboriginal peoples in Canada have relatively high rates of obesity and diabetes.
- Active leisure time is associated with better health.
- Little information is available for the three Aboriginal groups—First Nations people off reserve, Métis, Inuit—separately.

What does this study add?

- First Nations people off reserve and Métis are more active than non-Aboriginal Canadians.
- Socio-demographic characteristics are associated with physically active leisure time.
- Active leisure time is associated with better self-perceived general and mental health for Aboriginal people.

may be influential. The well-being of Aboriginal people may have not only physical and mental components, but also emotional and spiritual aspects based on a holistic approach.[16,17] Wilson et al.[18] suggested that in addition to well-established social determinants (such as income and education), traditional activities may be significantly associated with the health of Aboriginal people.

In the current study, active and moderately active leisure time were not significantly related to the presence of chronic conditions. However, the data are cross-sectional, and it is not possible to determine temporal associations. In addition, the total number of conditions and the the severity of impairment were not considered. By contrast, previous research has demonstrated links between physical activity and specific chronic disease risk factors. For instance, Katzmarzyk[9] found an association between Aboriginal identity and obesity, and between physical activity and obesity. Physical activity has also been shown to be inversely associated with metabolic syndrome among men (which, in turn, is associated with an elevated risk for cardiovascular disease and diabetes).[19] Links between physical activity and specific chronic condition among Aboriginal people warrant further investigation.

Strengths, limitations and future directions

The current study provides insight into the levels of leisure-time activity among a population-based sample of First Nations people off reserve, Métis people and the Inuit. Previous work in this area has not focused on factors associated with physical activity, or on associations between physical activity and the health of specific Aboriginal groups.

Some limitations should be acknowledged. Because the data are cross-sectional, it is not possible to determine the direction of relationships between physical activity and health in this study. Healthier people may be capable of active leisure time, rather than active leisure time leading to better health.

The specific activities in which Aboriginal people participated could not be identified. Moreover, the CCHS measure of physical activity may not be suited to Aboriginal people. It is based on a predetermined list of "common" activities that may not be prevalent in Aboriginal communities, while activities relevant to Aboriginal lifestyles are not included. For example, results from the First Nations Regional Longitudinal Health Survey revealed that hunting, trapping, berry-picking and food gathering (none of which were listed in the CCHS) were frequently cited as physical activities by First Nations people.[4] As well, self-rated health may not be construed in the same way by Aboriginal people because of a more holistic perspective[16] or because the CCHS categories are understood differently.

Similarly, the thresholds for *active*, *moderately active* and *inactive* leisure time may not be appropriate for Aboriginal people. They may not consider some of the activities listed by the CCHS as leisure, and therefore, do not include them among their leisure-time pursuits.[20] Kriska et al.[21] found that occupational activity was a greater contributor to total physical activity than was leisure time among Aboriginal people. If this is, indeed, the case, levels of physical activity may be underestimated in the current study. Additional research is necessary to determine if the measure of physical activity in the CCHS is appropriate for Aboriginal people.

Although First Nations people off reserve, Métis people and Inuit were examined separately, the leisure-time activities of even smaller groups with diverse traditions, history, and culture[10] might warrant attention. However, given that the current study was already limited by sample size, such research is not feasible using the CCHS. In fact, the failure to detect significant differences for factors potentially associated with leisure-time activity or between an active or moderately active lifestyle and health may be the result of small sample sizes.

Conclusion

The current study demonstrates that First Nations people off reserve and Métis people were more likely than non-Aboriginal Canadians to have an active lifestyle. The analysis highlights the importance of examining the three Aboriginal groups separately and the value of studying the relationship between physical activity and health. With an estimate of close to 1.2 million Aboriginal people in Canada in 2006,[22] further research is needed to identify factors associated with their physical and mental well-being. ■

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Appendix

Table A
Selected activities and metabolic equivalent of task (MET) value, 2005 Canadian Community Health Survey

Activity	MET value (kilocalories per kilogram per hour)
Jogging/Running	9.5
Basketball	6.0
Ice hockey	6.0
In-line skating/Rollerblading	5.0
Soccer	5.0
Volleyball	5.0
Bicycling	4.0
Downhill skiing/Snowboarding	4.0
Exercise class/Aerobics	4.0
Golfing	4.0
Ice skating	4.0
Tennis	4.0
Baseball/Softball	3.0
Fishing	3.0
Gardening/Yard work	3.0
Home exercises	3.0
Popular or social dance	3.0
Swimming	3.0
Walking for exercise	3.0
Weight training	3.0
Bowling	2.0
Other*	4.0

* mean MET value applied for all "other" activities

Table B
Chronic conditions listed in 2005 Canadian Community Health Survey

Condition
Food allergies
Other allergies
Asthma
Fibromyalgia
Arthritis/Rheumatism
Back problems
High blood pressure
Migraine headaches
Chronic bronchitis
Emphysema
Chronic obstructive pulmonary disease
Diabetes
Epilepsy
Heart disease
Cancer
Intestinal/Stomach ulcers
Effects of stroke
Urinary incontinence
Bowel disorder
Alzheimer's disease/Other dementia
Cataracts
Glaucoma
Thyroid condition
Chronic fatigue syndrome
Multiple chemical sensitivities
Schizophrenia
Mood disorder such as depression, bipolar disorder, mania, dysthymia
Anxiety disorder such as a phobia, obsessive compulsive disorder, panic disorder
Autism/Other developmental disorder
Learning disability
Eating disorder (anorexia, bulimia)
Other long-term physical or mental health condition diagnosed by health professional